Assignment 1 GDD2 2018:

Create a 3D Model from an real object

Deadline: 03.05.2019

Your task for assignment 1 of GDD2 2019 is to create a 3D model from a real life object using photogrammetry. This should be preferably a statue or a model you find in Inffeldgasse or a landmark of Graz. Photogrammetry [0] is a technique that enables us to create 3D models based on photos of the object (usually a lot of photos).

The used software can be freely chosen, most of the commercial packages feature trial versions which you can use for this task. Here's a list of software we can recommend:

- Agisoft Photoscan/Metashape (trial available) [1]
- Zephyr3D (free version available) [2]
- visualSFM (free) [3]
- MeshRoom (open source) [4]

Since you're supposed to to take photos, a camera will also be needed. Luckily everything ranging from a DSLR to a smartphone camera works pretty well. However, we recommend the use of a DSLR camera. These articles compile a lot of useful advice on how to take great photos for photogrammetry: [5 - 7]

Most of the time photogrammetry creates very dense models, which aren't very performant in a realtime/gaming/vr environment, so it is best practice to optimize the 3D models before using them in games. Depending on which software you decide to use you can either take a look at the built-in optimization tools (if applicable) or use external tools like MeshLab [8] or Blender [9] for optimization.

Deliverables:
- Send a .pdf with the name "1-yourmatrikelnumber.pdf" to gdd@iicm.edu. This PDF should contain 3 screenshots of your 3D model, showing the model from front, top, and side respectively. Additionally it should contain a link to download your model from a cloud storage of your choice (Dropbox, OneDrive, WeTransfer).
- **Alternatively**: It's possible to upload your 3D model to Sketchfab [10], which is a place to upload and view 3D models in your browser (or VR) without any additional plugins. Tag your model with "tugamedev" and make sure to enter a few sentences of meaningful description. Send the public link of your Sketchfab model to gdd@iicm.edu .

[0] https://en.wikipedia.org/wiki/Photogrammetry#Photogrammetric_methods

[1] http://www.agisoft.com/

[2] https://www.3dflow.net/3df-zephyr-pro-3d-models-from-photos/

[3] http://ccwu.me/vsfm/

[4] https://github.com/alicevision/meshroom

[5] http://www.gdcvault.com/play/1023272/Photogrammetry-and-Star-Wars-Battlefront

[6] https://forums.autodesk.com/t5/reality-computing/what-makes-photos-good-for-photogrammetry-how-to-take-the-best/ba-p/5738392

[7] http://www.agisoft.com/pdf/photoscan-pro_1_2_en.pdf

[8] http://www.meshlab.net/

[9] https://www.blender.org/

[10] https://sketchfab.com/